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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,978	12/13/2004	Jorg Hoffmann	BOE01 059	3430
7590 Mark C Comtois Duane Morris Suite 700 1667 K Street N W Washington, DC 20006			EXAMINER CAZAN, LIVIUS RADU	
			ART UNIT 3729	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/500,978	<b>Applicant(s)</b> HOFFMANN ET AL.	
	<b>Examiner</b> Livius R. Cazan	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,9,10,13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,9,10,13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The amendment filed on 9/6/2007 has been fully considered and made of record.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1, 5-7, and 9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the claims are method claims, yet the method steps are not recited as positive steps. For example, steps b) and c) should read --fixing an axial ring (47) to one end of the shaft (35);-- and --inserting into the bearing sleeve (37) the shaft (35) together with the axial ring (47);--, respectively, so as to positively recite the method steps. Likewise for the remaining method steps.

Further, in step f), "mo-tor" should be changed to --motor-- and "49" should be changed to --35--

In claim 7, "base plate(21)" should be changed to --base plate (21)--.

In claim 9, "with a unit ... bearing sleeve (37)" should be changed to --with a unit consisting of the rotor hub (31), the shaft (35) and the bearing sleeve (37)--.

In claim 10, line 11. "bearing rotor assembly (13)" should be changed to --bearing-rotor assembly (49)-- and "forming" should be changed to --forms--. In the last line, "the base plate" should be changed to --a base plate--.

In claim 17, line 1, "bearing rotor assembly" should be changed to --bearing-rotor assembly" and "the hydrodynamic" in line 2 should be changed to --a hydrodynamic--. "(13)," in line 3 should be changed to --(13)--. "plate of the spindle" in the last line should read --plate (21) of the spindle motor--.

Further, line 1 of each of claims 5-7 and 9 should begin with --The method-- rather than "A method"

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. **Claims 10 and 15-17** are rejected under 35 U.S.C. 102(e) as being anticipated by Saichi (US6614139).

With reference to Fig. 2, Saichi discloses a hydrodynamic bearing arrangement for an electric motor comprising a stator (23), a rotor (30), a shaft (31) and the hydrodynamic bearing arrangement, which rotatably supports the rotor with respect to the stator, the hydrodynamic bearing arrangement having a bearing sleeve (22), an axial ring (33) being mounted onto one end of the shaft (31) and the shaft (31) being inserted into the bearing sleeve (22); the corresponding end of the bearing sleeve (22) being sealed with a counter disk (25); bearing fluid being inserted into the bearing gap (see col. 8, Ins. 19 and 20; col. 7, Ins. 17-26) between the shaft (31) and the bearing sleeve (22), and the bearing-rotor assembly thus formed from the hydrodynamic bearing arrangement and the shaft forming a fully functional unit that can be tested and

mounted onto the stator or the rotor. Such an electric motor can be mounted in a hard disk drive (col. 7, Ins. 5-7).

The stator or the rotor is firmly fixed to the outer surface of the bearing sleeve (22). The hydrodynamic bearing arrangement is fixedly connected to the rotor or the stator. A groove (col. 6, Ins. 9-19) is provided on at least one of the bonded contact surfaces of either the bearing-rotor assembly or the base plate.

The bearing-rotor assembly *can* be tested before being adhesively bonded to the base plate. The claims, as currently presented, do not require the bearing-rotor assembly being bonded to the base plate using adhesive.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Saichi.

Saichi discusses press-fitting or shrink-fitting the bearing sleeve within the stator assembly (col. 4, Ins. 61-67). However, it isn't clear from Saichi whether the embodiment utilizing adhesive also utilizes the interference fit / press fit, and Saichi does not discuss utilizing a transition fit. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to utilize both techniques, to provide an even more secure fit between the bearing-rotor assembly and the base plate.

The patentability of a product does not depend on its method of production. In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985) (citing In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969)). If a product in a product-by-

process claim is the same as or obvious from a product in the prior art, the claim is unpatentable even though the prior product is made by a different process. *Id.* citing *In re Marosi*, 710 F.2d 799, 803, 218 USPQ 289, 292-93 (Fed. Cir. 1983); *Johnson & Johnson v. W.L. Gore*, 436 F. Supp. 704, 726, 195 USPQ 487, 506 (D. Del. 1977); see also *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Therefore it does not matter when the shaft is inserted into the bearing sleeve. Also, depending on the tolerance of the parts to be mated, a transition fit can be indistinguishable structurally from an interference fit (i.e. press-fitting or shrink-fitting), and the method of obtaining the fit is therefore irrelevant.

8. **Claims 1, 6, 7, and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saichi in view of Lindsay (US2251142).

**Regarding claims 1, 6, and 9**, referring to Fig. 1, Saichi discloses the claimed method steps, as discussed in the rejection under 35 U.S.C. 102 above.

However, Saichi does not disclose testing the thus formed assembly before installing it into the spindle motor, nor performing such testing after having connected the shaft to the rotor.

It is very well known to test components prior to further processing, in order to reduce manufacturing costs by discarding defective components prior to performing further manufacturing steps. For example, Lindsay teaches testing a bearing assembly prior to assembling it in a wheel, in order to avoid having to later disassemble the entire wheel to remove a defective bearing (page 1, col. 2, lns. 9-30).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to test the bearing assembly prior to mounting it into the stator, in order to avoid wasting manufacturing time and resources. A defective bearing assembly installed in a good disk drive results in a defective drive, which is a waste of time and materials. Further, it would have been obvious to one of ordinary skill in the art to perform such testing either prior to, after, or both prior to and after assembling the shaft to the rotor, in order to eliminate defective components as early as possible during the manufacturing cycle.

**Regarding claim 7,** Saichi disclose substantially the same invention as the Applicant. Saichi discusses press-fitting or shrink-fitting the bearing sleeve within the stator assembly (col. 4, Ins. 61-67). However, Saichi does not mention utilizing a transition fit.

In the art, there are several well-known methods of fitting two parts two be mated: clearance fit, transition fit, and interference fit. At the time the invention was made, one of ordinary skill in the art would have found it obvious to utilize an appropriate type of fit between the bearing arrangement and the stator (such as a transition fit), so as to efficiently fasten the bearing arrangement and the stator. One of ordinary skill in the art would have found it obvious to optimize the tolerance range for each of the parts to be mated such that the resulting fit is effective.

Further, it isn't clear from Saichi whether the embodiment utilizing adhesive also utilizes the interference fit / press fit. At the time the invention was made, it would have

been obvious to one of ordinary skill in the art to utilize both techniques, to provide an even more secure fit between the bearing-rotor assembly and the base plate.

9. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Saichi and Lindsay in view of Hoffmann (US6566776 to Hoffmann et al.).

Saichi and Lindsay disclose the same invention as the Applicant, except for the adhesive utilized to bond the shaft to the rotor being an adhesive with low gas emission properties.

Hoffmann teaches that in hard disk drives it is disadvantageous to utilize adhesives which give off gasses, since the gasses can deposit on the storage disks. Therefore, Hoffmann teaches utilizing adhesives with low gas emission properties. See col. 1, Ins. 14-24. See col. 2, Ins. 1-17.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such an adhesive in order to prevent damage to the data storage disks.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Livius R. Cazan whose telephone number is (571) 272-8032. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571)272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3729

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LRC/ 11/14/2007



**A. DEXTER TUGBANG**  
**PRIMARY EXAMINER**